

**Harry B. Wilson, OSB #077214**  
HarryWilson@MarkowitzHerbold.com  
**Hannah K. Hoffman, OSB #183641**  
HannahHoffman@MarkowitzHerbold.com  
**MARKOWITZ HERBOLD PC**  
1455 SW Broadway, Suite 1900  
Portland, OR 97201-3412  
(503) 295-3085

Special Assistant Attorneys General for Defendants

**Ellen F. Rosenblum, OSB #753239**  
Attorney General  
**Brian Simmonds Marshall, OSB #196129**  
Senior Assistant Attorney General  
Brian.S.Marshall@doj.state.or.us  
**DEPARTMENT OF JUSTICE**  
100 SW Market Street  
Portland, OR 97201  
(971) 673-1880

Attorneys for Defendants

UNITED STATES DISTRICT COURT  
DISTRICT OF OREGON  
PENDLETON DIVISION

OREGON FIREARMS FEDERATION, INC.,  
et al.,  
  
Plaintiffs,  
  
v.  
  
TINA KOTEK, et al.,  
  
Defendants,

Case No. 2:22-cv-01815-IM (lead case)  
3:22-cv-01859-IM (trailing case)  
3:22-cv-01862-IM (trailing case)  
3:22-cv-01869-IM (trailing case)

**DECLARATION OF LOUIS  
KLAREVAS**

and
OREGON ALLIANCE FOR GUN SAFETY,
Intervenor-Defendant.
MARK FITZ, et al.,
Plaintiffs,
v.
ELLEN F. ROSENBLUM, et al.,
Defendants.
KATERINA B. EYRE, et al.,
Plaintiffs,
v.
ELLEN F. ROSENBLUM, et al.,
Defendants,
and
OREGON ALLIANCE FOR GUN SAFETY,
Intervenor-Defendant.
DANIEL AZZOPARDI, et al.,
Plaintiffs,
v.
ELLEN F. ROSENBLUM, et al.,
Defendants.

Pursuant to 28 U.S.C. § 1746, I, Louis Klarevas, declare under penalty of perjury that the following is true and correct:

1. I am over the age of eighteen (18) years, competent to testify to the matters contained in this declaration, and testify based on my personal knowledge and information.

2. I have been asked by the State of Oregon defendants to prepare an expert declaration addressing the relationship between large-capacity magazines (LCMs) and mass shootings, including how restrictions on LCMs impact mass shooting violence. This expert declaration is based on my own personal knowledge and experience, and, if I am called as a witness, I could and would testify competently to the truth of the matters discussed in this declaration (“Declaration” hereinafter).

### PROFESSIONAL QUALIFICATIONS

3. I am a security policy analyst and, currently, Research Professor at Teachers College, Columbia University, in New York. I am also the author of the book *Rampage Nation*, one of the most comprehensive studies on gun massacres in the United States.<sup>1</sup>

4. I am a political scientist by training, with a B.A. from the University of Pennsylvania and a Ph.D. from American University. My current research examines the nexus between American public safety and gun violence, including serving as an investigator in a study funded by the National Institutes of Health that is focused on reducing intentional shootings at elementary and secondary schools.

5. During the course of my 20-year career as an academic, I have served on the faculties of the George Washington University, the City University of New York, New York University, and the University of Massachusetts. I have also served as a Defense Analysis Research Fellow at the London School of Economics and Political Science and as United States Senior Fulbright Scholar in Security Studies at the University of Macedonia.

6. In addition to having made well over 100 media and public-speaking appearances, I am the author or co-author of more than 20 scholarly articles and over 70 commentary pieces. In 2019, my peer-reviewed article on the effectiveness of restrictions on LCMs in reducing high-fatality mass shootings resulting in six or more victims killed was published in the *American*

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<sup>1</sup> Louis Klarevas, *Rampage Nation: Securing America from Mass Shootings* (2016).

*Journal of Public Health*.<sup>2</sup> This study found that jurisdictions with LCM bans experienced substantially lower gun massacre incidence and fatality rates when compared to jurisdictions not subject to similar bans. Despite being over 3 years old now, this study continues to be one of the highest impact studies in all of academia. It was recently referred to as “the perfect gun policy study,” in part due to the study’s “robustness and quality.”<sup>3</sup>

7. In the past four years (since January 1, 2019), I have been deposed, testified in court, or testified by declaration in the following cases: *Duncan v. Becerra*, United States District Court for the Southern District of California, Case Number 17-cv-1017-BEN-JLB; *Miller v. Bonta*, Case No. 3:19-cv-1537-BEN-JBS, United States District Court for the Southern District of California; *Jones v. Bonta*, United States District Court for the Southern District of California, Case Number 19-cv-01226-L-AHG; *Nguyen v. Bonta*, Case No. 3:20-cv-02470-WQH-MDD, United States District Court for the Southern District of California; *Rupp v. Bonta*, United States District Court for the Eastern District of California, Case Number 17-cv-00903-WBS-KJN; *Brumback v. Ferguson*, United States District Court for the Eastern District of Washington, Case Number 22-cv-03093-MKD; *National Association for Gun Rights v. Highland Park*, United States District Court for the Northern District of Illinois, Case Number 22-cv-04774; *National Association for Gun Rights v. Campbell*, United States District Court for the District of Massachusetts, Case Number 22-cv-11431-FDS; and *National Association for Gun*

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<sup>2</sup> Louis Klarevas, et al., “The Effect of Large-Capacity Magazine Bans on High-Fatality Mass Shootings,” 109 *American Journal of Public Health* 1754 (2019), available at <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2019.305311> (last accessed December 27, 2022).

<sup>3</sup> Lori Ann Post and Maryann Mason, “The Perfect Gun Policy Study in a Not So Perfect Storm,” 112 *American Journal of Public Health* 1707 (2022), available at <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2022.307120> (last accessed December 27, 2022). According to Post and Mason, “Klarevas et al. employed a sophisticated modeling and research design that was more rigorous than designs used in observational studies. Also, they illustrated the analytic steps they took to rule out alternative interpretations and triangulate their findings, for example examining both state bans and federal bans. They helped build the foundation for future studies while overcoming the limitations of previous research.” *Ibid*.

*Rights v. Lamont*, United States District Court for the District of Connecticut, Case No. 3:22-cv-01118-JBA.

8. In 2021, I was retained by the Government of Canada in the following cases which involved challenges to Canada's regulation of certain categories of firearms: *Parker and K.K.S. Tactical Supplies Ltd. v. Attorney General of Canada*, Federal Court, Court File No.: T-569-20; *Canadian Coalition for Firearm Rights, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-577-20; *Hipwell v. Attorney General of Canada*, Federal Court, Court File No.: T-581-20; *Doherty, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-677-20; *Generoux, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-735-20; and *Eichenberg, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-905-20. I testified under oath in a consolidated court proceeding involving all six cases in the Federal Court of Canada.

9. A true and correct copy of my current curriculum vitae is attached as **Exhibit A** to this Declaration.

10. I have been retained by the State of Oregon defendants to render expert opinions in this case. I will be compensated at a rate of \$600 per hour for any testimony (in deposition and in court), and am being compensated at a rate of \$480 per hour for all other services.

### **OPINIONS**

11. It is my professional opinion, based upon my extensive review and analysis of the data, that (1) in terms of individual acts of intentional criminal violence, mass shootings presently pose the deadliest threat to the safety of American society in the post-9/11 era, and the problem is growing nationwide; (2) high-fatality mass shootings involving LCMs, on average, have resulted in a substantially larger loss of life than similar incidents that did not involve LCMs; (3) mass shootings resulting in double-digit fatalities are relatively modern phenomena in American history, largely related to the use of assault weapons and LCMs; (4) in the decades leading up to the 1994 federal ban on assault weapons and LCMs, the percentage of new firearm

models sold with factory-issue LCMs as a share of all new firearm models sold in the U.S. civilian marketplace appears to have never exceeded 7.2%; and (5) states that restrict LCMs experience fewer high-fatality mass shooting incidents and fatalities, per capita, than states that do not restrict LCMs.<sup>4</sup> Based on these findings, it is my opinion that restrictions on LCMs have the potential to save lives by reducing the frequency and lethality of gun massacres.<sup>5</sup>

## I. MASS SHOOTINGS ARE A GROWING THREAT TO PUBLIC SAFETY

12. Examining mass-casualty acts of violence in the United States since 1990 points to two disturbing patterns.<sup>6</sup> First, as demonstrated in Table 1, the deadliest individual acts of

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<sup>4</sup> For purposes of this Declaration, mass shootings are defined in a manner consistent with my book *Rampage Nation* (see Excerpt Attached as **Exhibit B**). “Mass shootings” are shootings resulting in four or more victims being shot (fatally or non-fatally), regardless of location or underlying motive. As a subset of mass shootings, “high-fatality mass shootings” (also referred to as “gun massacres”) are defined as shootings resulting in 6 or more victims being shot to death, regardless of location or underlying motive. The data on high-fatality mass shootings is from a data set that I maintain and continuously update. This data set is reproduced in **Exhibit C**. Unless stated otherwise, all of the data used to perform original analyses and to construct tables and figures in this Sections I, II, and V of this Declaration are drawn from **Exhibit C**.

<sup>5</sup> Some of the opinions in the present Declaration were previously advanced in a 2018 Expert Report and a 2022 Supplemental Declaration that I submitted in a case involving a challenge to California’s restrictions on LCMs. Revised Expert Report of Dr. Louis Klarevas, *Duncan v. Becerra*, January 5, 2018, United States District Court for Southern District of California, Case Number 17-cv-1017-BEN-JLB (“2018 Klarevas Report” hereinafter); Supplemental Declaration of Louis Klarevas, November 10, 2022, *Duncan v. Becerra*, United States District Court for Southern District of California, Case Number 17-cv-1017-BEN-JLB. With my consent, my 2022 Supplemental Declaration in *Duncan* was submitted in the present case in support of Defendants’ Response to Plaintiffs’ Motion for Emergency Temporary Restraining Order. In response, the Plaintiffs submitted a Declaration by Gary Kleck, which is nearly a word-for-word reproduction of a Declaration he submitted in *Duncan*, responding in part to my 2022 Supplemental Declaration in *Duncan*. Declaration of Gary Kleck, *Oregon Firearms Federation v. Brown*, United States District Court for the District of Oregon, Case Number 22-cv-01815-JM (“2023 Kleck Declaration” hereinafter). Because Kleck is attempting to rebut some of the factual claims and opinions advanced in the present Declaration, I will, where appropriate, address his remarks.

<sup>6</sup> Because the analysis in Section V of this Declaration necessarily uses data from 1990 through 2022, for purposes of consistency (and to avoid any confusion), the analyses in Sections I and II also use data from 1990 through 2022.

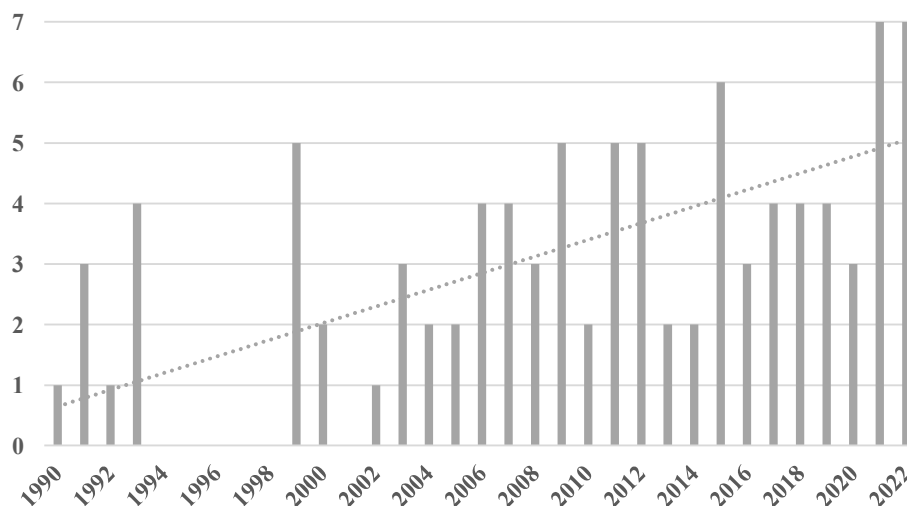
intentional criminal violence in the United States since the terrorist attack of September 11, 2001, have all been mass shootings. Second, as displayed in Figures 1-2, the problem of high-fatality mass shooting violence is on the rise. To put the increase over the last three decades into perspective, between the 1990s and the 2010s, the average population of the United States increased approximately 20%. However, when the number of people killed in high-fatality mass shootings in the 1990s is compared to the number killed in such incidents in the 2010s, it reflects an increase of 260%. In other words, the rise in mass shooting violence has far outpaced the rise in national population—by a factor of 13. The obvious takeaway from these patterns and trends is that mass shootings pose a significant—and growing—threat to American public safety.<sup>7</sup>

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<sup>7</sup> With regard to patterns in mass shooting violence, Kleck argues that we should examine the data from a different data set that he recommends we use: the Gun Violence Archive (GVA). The GVA attempts to capture all shootings resulting in four or more people shot (fatally or non-fatally), regardless of the location or underlying motive of the shooting. While the GVA data set only captures incidents since 2013, Kleck considers it “the most comprehensive source available.” 2023 Kleck Declaration, Para. 43. Kleck asserts that if, instead of examining shootings that result in six or more victims killed, we examine shootings in the GVA using “the cut-off of four deaths commonly used by other scholars,” we will see that “there has been no upward trend in mass shootings.” *Ibid.* There are three problems with Kleck’s claim. First, there is no accepted definition of mass shootings. While some scholars do define mass shootings as shootings resulting in four or more deaths, others like Kleck have traditionally defined mass shootings as using a fatality threshold (or “cut-off” to use Kleck’s language) of six or more deaths. *See*, Gary Kleck, *Targeting Guns: Firearms and Their Control* (1997), at 124-125 (Relevant Excerpt Attached as **Exhibit D**). In fact, in his most recent work, Kleck has moved the threshold up, not down, from six or more deaths to “more than six people” being shot (although he includes non-fatal casualties in his more recent definition). *See*, Gary Kleck, “Large-Capacity Magazines and the Casualty Counts in Mass Shootings: The Plausibility of Linkages,” 17 *Justice Research and Policy* (2016), at 33 (Attached as **Exhibit E**). As a reminder, I define mass shootings in a manner consistent with the GVA, but the subset of data that I analyze are high-fatality mass shootings resulting in 6 or more victims killed (**Exhibit C**). To my knowledge, this remains the only data set that comprehensively and accurately identifies whether or not LCMs were involved in gun massacres. Second, Kleck miscounted the number of incidents in the GVA data set that resulted in four or more deaths. According to Kleck, there were 222 such incidents from 2013 through 2021 identified in the GVA data set. 2023 Kleck Declaration, Para. 14, Table 1. Actually, there are 247 incidents from 2013 through 2021. *See*, List of Gun Violence Archive Mass Shootings Resulting in Four or More Deaths, 2013-2022 (Attached as **Exhibit F**). Adding 2022 data results in a total of 281 mass shootings resulting in four or more deaths from 2013 through 2022. Finally, regardless of whether one uses Kleck’s erroneous data or the actual GVA data, the trend is an upward one. Annual Number of Mass Shootings Resulting in Four or More Deaths from Gun Violence Archive (Attached as **Exhibit G**).

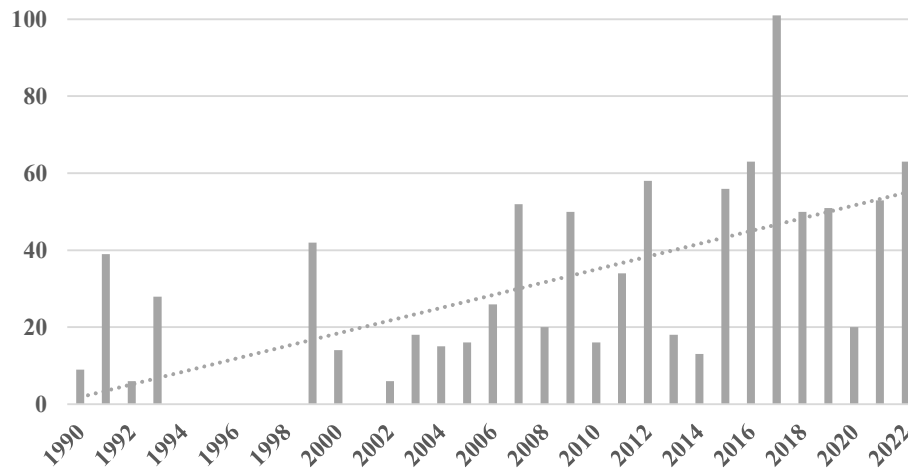
**Table 1. The Deadliest Acts of Intentional Criminal Violence in the U.S. since 9/11**

	<b>Deaths</b>	<b>Date</b>	<b>Location</b>	<b>Type of Violence</b>
1	60	October 1, 2017	Las Vegas, NV	Mass Shooting
2	49	June 12, 2016	Orlando, FL	Mass Shooting
3	32	April 16, 2007	Blacksburg, VA	Mass Shooting
4	27	December 14, 2012	Newtown, CT	Mass Shooting
5	25	November 5, 2017	Sutherland Springs, TX	Mass Shooting
6	23	August 3, 2019	El Paso, TX	Mass Shooting
7	21	May 24, 2022	Uvalde, TX	Mass Shooting

**Figure 1. Annual Trends in High-Fatality Mass Shooting Incidents, 1990-2022**

Note: The dotted line is a linear trendline. A linear trendline is a straight line that captures the overall pattern of the individual data points. When there is a positive relationship between the x-axis and y-axis variables, the trendline moves upwards from left to right. When there is a negative relationship between the x-axis and y-axis variables, the trendline moves downwards from left to right.



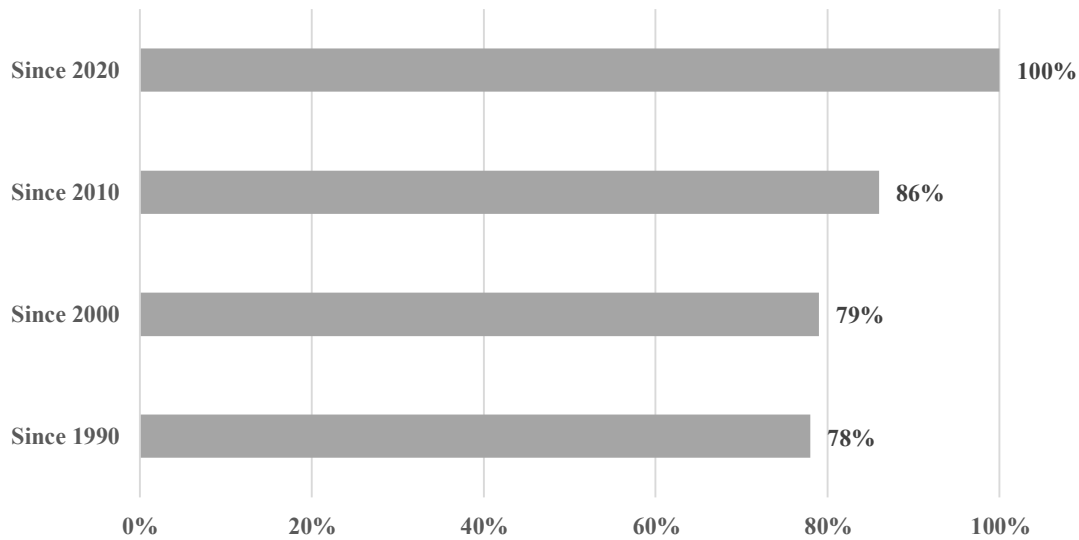
**Figure 2. Annual Trends in High-Fatality Mass Shooting Fatalities, 1990-2022**

Note: The dotted line is a linear trendline. A linear trendline is a straight line that captures the overall pattern of the individual data points. When there is a positive relationship between the x-axis and y-axis variables, the trendline moves upwards from left to right. When there is a negative relationship between the x-axis and y-axis variables, the trendline moves downwards from left to right.

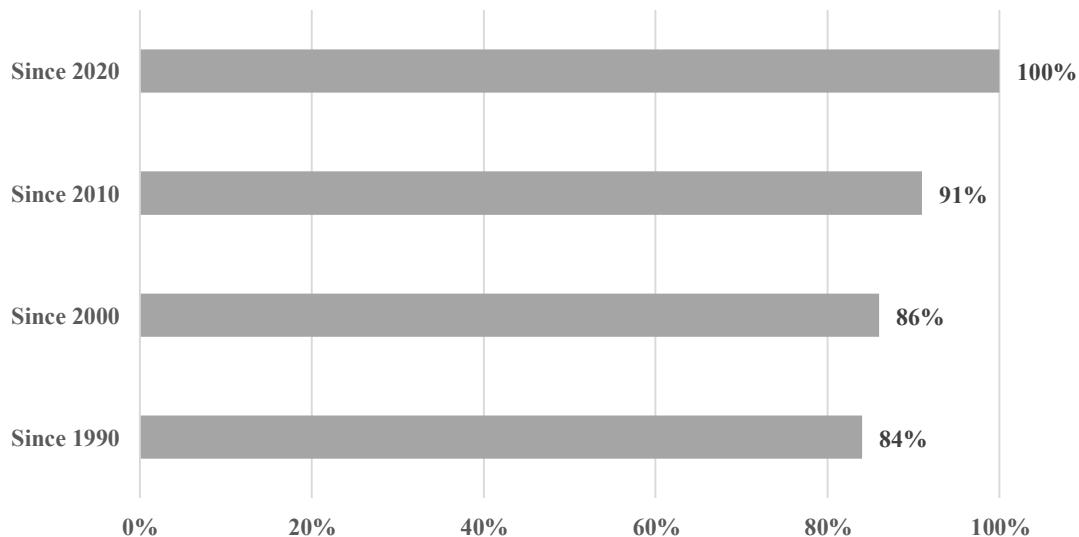
## **II. THE USE OF LCMs IS A MAJOR FACTOR IN THE RISE OF MASS SHOOTING VIOLENCE**

13. In addition to showing that the frequency and lethality of high-fatality mass shootings are on the rise nationally, the data point to another striking pattern: LCMs are being used with increased frequency to perpetrate gun massacres. As shown in Figure 3, based on incidents where details allowing a determination on the use of LCMs are available, the pattern is particularly marked of late, with 100% of high-fatality mass shootings since 2020 involving LCMs. A similar pattern is found when examining fatalities since 2020, with 100% of all high-fatality mass shooting deaths in the last three years involving LCMs, as shown in Figure 4. These trends clearly demonstrate that, among high-fatality mass shooters, there is a growing preference for using LCMs to perpetrate their attacks.<sup>8</sup>

<sup>8</sup> Out of all 94 high-fatality mass shootings in the United States between 1990 and 2022, it cannot be determined whether LCMs were used in 14 of those incidents. Therefore, the graphical depictions in Figures 3-4 and the percentages discussed in Para. 12 of this Declaration are based on calculations that only use data points from the 80 incidents in which the involvement of LCMs could be determined.

**Figure 3. Share of High-Fatality Mass Shooting Incidents Involving LCMs, 1990-2022**

Note: The calculations in Figure 3 exclude incidents in which it is unknown if LCMs were used.

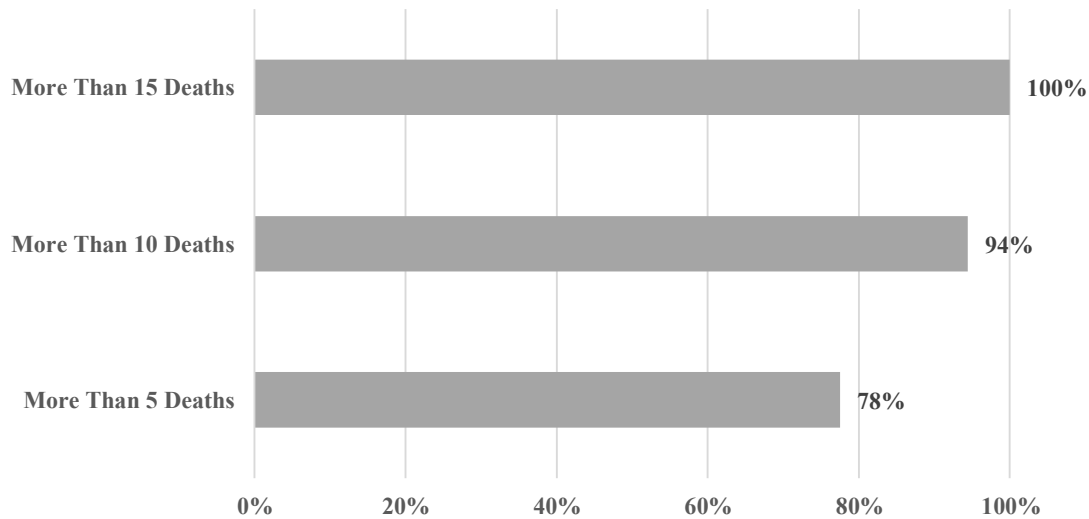
**Figure 4. Share of High-Fatality Mass Shooting Deaths Resulting from Incidents Involving LCMs, 1990-2022**

Note: The calculations in Figure 4 exclude incidents in which it is unknown if LCMs were used.

14. Another pattern that stands out when examining the relationship between LCM use and mass shooting violence reflects the disproportionately greater lethality associated with the use of LCMs. For instance, returning to the list of the 7 deadliest individual acts of intentional criminal violence in the United States since the coordinated terrorist attack of September 11, 2001, besides all seven of the incidents being mass shootings, another prominent trait is that all 7 incidents (100%) involved LCMs, as shown in Table 2. When examining all high-fatality mass shootings since 1990, the relationship between LCM use and higher death tolls is striking. In the past 33 years, LCMs have been used in 78% of all high-fatality mass shootings. However, as the fatality thresholds of such incidents increase, so too do the shares of incidents involving LCMs. For instance, LCMs were used in 94% of all mass shootings resulting in more than 10 deaths and 100% of all mass shootings resulting in more than 15 deaths (Figure 5). As the data show, there is an association between mass shooting lethality and the use of LCMs.

**Table 2. The Use of LCMs in the Deadliest Acts of Intentional Criminal Violence in the U.S. since 9/11**

<b>Deaths</b>	<b>Date</b>	<b>Location</b>	<b>Involved LCM(s)</b>
60	October 1, 2017	Las Vegas, NV	✓
49	June 12, 2016	Orlando, FL	✓
32	April 16, 2007	Blacksburg, VA	✓
27	December 14, 2012	Newtown, CT	✓
25	November 5, 2017	Sutherland Springs, TX	✓
23	August 3, 2019	El Paso, TX	✓
21	May 24, 2022	Uvalde, TX	✓

**Figure 5. Percentage of High-Fatality Mass Shootings Involving LCMs by Fatality Threshold, 1990-2022**

Note: The calculations in Figure 5 exclude incidents in which it is unknown if LCMs were used.

15. Of the 80 high-fatality mass shootings since January 1, 1990, in which LCM use can be determined, 62 involved LCMs, resulting in 713 deaths. The average death toll for these 62 incidents is 11.5 fatalities per shooting. By contrast, the average death toll for the 18 incidents in which it was determined that LCMs were not used (which resulted in 132 fatalities) is 7.3 fatalities per shooting. In other words, since 1990, the use of LCMs in high-fatality mass shootings has resulted in a 58% increase in average fatalities per incident (Table 3). This review of the data suggests that LCMs are force multipliers when used in mass shootings.

**Table 3. The Average Death Tolls Associated with the Use of LCMs in High-Fatality Mass Shootings in the U.S., 1990-2022**

	Average Death Toll for Incidents That Did Not Involve the Use of LCMs	Average Death Toll for Incidents That Did Involve the Use of LCMs	Percent Increase in Average Death Toll Associated with the Use of LCMs
1990-2022	7.3 Deaths	11.5 Deaths	58%

Note: The calculations in Table 3 exclude incidents in which it is unknown if LCMs were used.

### III. DOUBLE-DIGIT-FATALITY MASS SHOOTINGS ARE A POST-WORLD WAR II PHENOMENON IN AMERICAN HISTORY AND THEY INCREASINGLY INVOLVE ASSAULT WEAPONS AND LCMS

16. I have also examined the historical occurrence and distribution of mass shootings resulting in 10 or more victims killed since 1776 (Table 4 and Figure 6). A lengthy search uncovered several informative findings.<sup>9</sup> In terms of the origins of this form of extreme gun violence, there is no known occurrence of a mass shooting resulting in double-digit fatalities at any point in time during the 173-year period between the nation's founding in 1776 and 1948.

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<sup>9</sup> I searched for firearm-related "murders," using variations of the term, setting a minimum fatality threshold of 10 in the Newspaper Archive online newspaper repository, available at [www.newspaperarchive.com](http://www.newspaperarchive.com) (last accessed October 2, 2022). The Newspaper Archive contains local and major metropolitan newspapers dating back to 1607. Incidents of large-scale, inter-group violence such as mob violence, rioting, combat or battle skirmishes, and attacks initiated by authorities acting in their official capacity were excluded. In the Declaration submitted in this case, Kleck claims, without providing any evidence in support of his claim, that the Newspaper Archive, "includes *a few* local newspapers going back" to 1607 (emphasis in original). 2023 Kleck Declaration, Para. 45. He adds, "Prior to the 20th century most of the nation was not covered by these few local newspapers, so correspondingly few mass murders would be covered by these sources." *Ibid.* According to Kleck, reliance on the Newspaper Archive "results in a gross undercount of mass shootings." *Ibid.*, Para. 46. Kleck, however, never explains how he determined that, prior to the 20th century, only "a few" local newspapers covered the entire United States. Nor does he tell us how many local newspapers constitute "a few," however it is that Kleck defines the term "few." To properly determine this, Kleck would have to first identify how many newspapers covering the time period from 1607 until the end of the 19th century are archived in the Newspaper Archive. As it is, Kleck provides no evidence that he actually knows how many newspapers in existence prior to the 20th century are archived in the Newspaper Archive. Furthermore, Kleck fails to explain how he determined that my review resulted in not just an undercount of mass shootings, but a "gross undercount." To properly determine this, Kleck would have to first identify every single mass shooting resulting in 10 or more deaths that I allegedly overlooked. But he provides no evidence that he performed such an analysis. Besides, if he did, wouldn't he have told us the precise number of incidents that I supposedly overlooked? It should be noted that Kleck also takes issue with my exclusion of "Incidents of large-scale, inter-group violence such as mob violence, rioting, combat or battle skirmishes, and attacks initiated by authorities acting in their official capacity." Kleck asks, "If these were incidents in which large numbers of people were killed with firearms, what is the justification for not defining them as mass shootings?" The answer to this question appears in the book that Kleck cites in Para. 48 of his Declaration as his authority on mass murder in the United States: Grant Duwe, *Mass Murder in the United States: A History* (2007). According to Duwe, "The definition of mass murder used here also does not include riots, lynchings, and other instances of collective violence. I excluded these cases because it is often difficult to disentangle the victims from the offenders." *Ibid.*, at 15. The exclusion of such acts of violence is standard practice among scholars of multiple-victim criminal violence.

The first known mass shooting resulting in 10 or more deaths occurred in 1949. In other words, for 70% of its 247-year existence as a nation, the United States did not experience a mass shooting resulting in double-digit fatalities, making them a relatively modern phenomena in American history.<sup>10</sup>

17. After the first such incident in 1949, 17 years passed until a similar mass shooting occurred in 1966. The third such mass shooting then occurred 9 years later, in 1975. And the fourth such incident occurred 7 years after, in 1982. Basically, the first few mass shootings resulting in 10 or more deaths did not occur until the post-World War II era. Furthermore, these first few double-digit-fatality incidents occurred with relative infrequency, although the temporal gap between these first four incidents shrank with each event (Table 4 and Figure 7).<sup>11</sup>

18. The distribution of double-digit-fatality mass shootings changes in the early 1980s, when five such events took place in a span of just five years (Table 4 and Figure 7). This timeframe also reflects the first time that assault weapons were used to perpetrate mass shootings resulting in 10 or more deaths: the 1982 Wilkes-Barre, PA, massacre (involving an AR-15 rifle and resulting in 13 deaths) and the 1984 San Ysidro, CA, massacre (involving an Uzi pistol and resulting in 21 deaths). But this cluster of incidents was followed by a 20-year period in which only 2 double-digit-fatality mass shootings occurred (Figure 7). This period of time from 1987-2007 correlates with three important federal firearms measures: the 1986 Firearm Owners Protection Act, the 1989 C.F.R. “sporting use” importation restrictions, and the 1994 Federal Assault Weapons Ban.

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<sup>10</sup> Using the Constitution’s effective date of 1789 as the starting point would lead to the conclusion that, for 68% of its 234-year existence as a nation, the United States did not experience a mass shooting resulting in double-digit fatalities.

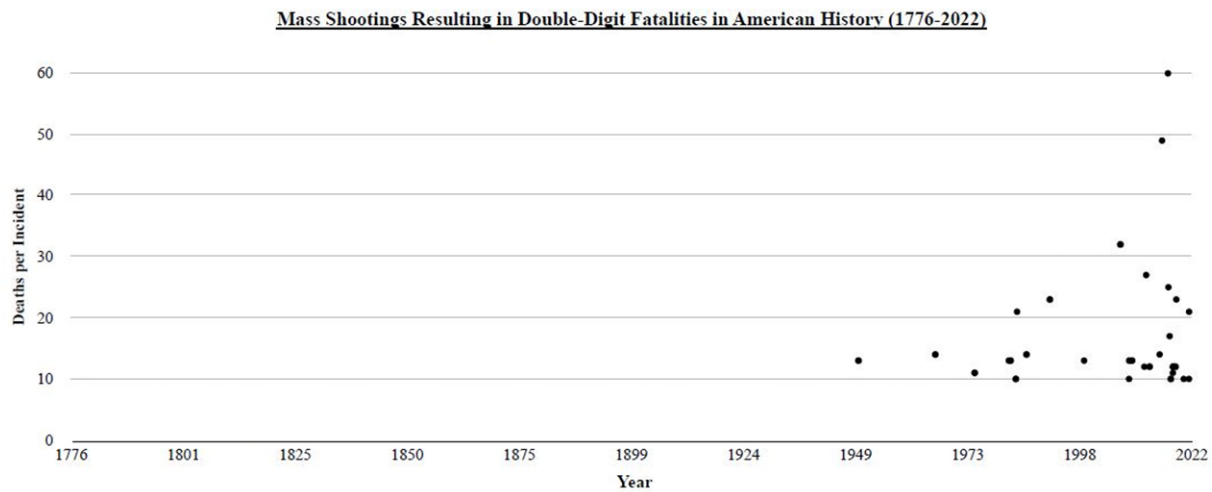
<sup>11</sup> Figures 6-7 are reproduced in larger form as **Exhibit H** of this Declaration.

**Table 4. Mass Shootings Resulting in Double-Digit Fatalities in U.S. History, 1776-2022**

	<b>Date</b>	<b>Location</b>	<b>Deaths</b>	<b>Involved Assault Weapon(s)</b>	<b>Involved LCM(s)</b>
1	9/6/1949	Camden, NE	13	N	N
2	8/1/1966	Austin, TX	14	N	Y
3	3/30/1975	Hamilton, OH	11	N	N
4	9/25/1982	Wilkes-Barre, PA	13	Y	Y
5	2/18/1983	Seattle, WA	13	N	N
6	4/15/1984	Brooklyn, NY	10	N	N
7	7/18/1984	San Ysidro, CA	21	Y	Y
8	8/20/1986	Edmond, OK	14	N	N
9	10/16/1991	Killeen, TX	23	N	Y
10	4/20/1999	Littleton, CO	13	Y	Y
11	4/16/2007	Blacksburg, VA	32	N	Y
12	3/10/2009	Geneva County, AL	10	Y	Y
13	4/3/2009	Binghamton, NY	13	N	Y
14	11/5/2009	Fort Hood, TX	13	N	Y
15	7/20/2012	Aurora, CO	12	Y	Y
16	12/14/2012	Newtown, CT	27	Y	Y
17	9/16/2013	Washington, DC	12	N	N
18	12/2/2015	San Bernardino, CA	14	Y	Y
19	6/12/2016	Orlando, FL	49	Y	Y
20	10/1/2017	Las Vegas, NV	60	Y	Y
21	11/5/2017	Sutherland Springs, TX	25	Y	Y
22	2/14/2018	Parkland, FL	17	Y	Y
23	5/18/2018	Santa Fe	10	N	N
24	10/27/2018	Pittsburgh, PA	11	Y	Y
25	11/7/2018	Thousand Oaks, CA	12	N	Y
26	5/31/2019	Virginia Beach, VA	12	N	Y
27	8/3/2019	El Paso, TX	23	Y	Y
28	3/22/2021	Boulder, CO	10	Y	Y
29	5/14/2022	Buffalo, NY	10	Y	Y
30	5/24/2022	Uvalde, TX	21	Y	Y

Note: Death tolls do not include perpetrators. An incident was coded as involving an assault weapon if at least one of the firearms discharged was defined as an assault weapon in (1) the 1994 Federal Assault Weapons Ban; (2) the statutes of the state where the gun massacre occurred; or (3) a legal or judicial declaration issued by a state official. An incident was coded as involving an LCM if at least one of the firearms discharged had an ammunition-feeding device holding more than 10 bullets.

**Figure 6. Mass Shootings Resulting in Double-Digit Fatalities in U.S. History, 1776-2022**





19. It is well-documented in the academic literature that, after the Federal Assault Weapons Ban expired in 2004, mass shooting violence increased substantially.<sup>12</sup> Mass shootings that resulted in 10 or more deaths were no exception, following the same pattern. In the 56 years from 1949 through 2004, there were a total of 10 mass shootings resulting in double-digit fatalities (a frequency rate of one incident every 5.6 years). In the 18 years since 2004, there have been 20 double-digit-fatality mass shootings (a frequency rate of one incident every 0.9 years). In other words, the frequency rate has increased over six-fold since the Federal Assault Weapons Ban expired (Table 4 and Figure 7). (The 1994 Federal Assault Weapons Ban and its impact on mass shooting violence is discussed in further detail in Section V of this Declaration.)

20. Over three-quarters of mass shootings resulting in 10 or more deaths involved LCMs (Table 4). As also shown in the analyses of mass shootings in Section II, death tolls in double-digit-fatality mass shootings are related to the use of firearm technologies like assault weapons and LCMs that, in terms of mass shootings, serve as force multipliers.

#### IV. THE AVAILABILITY OF LCMs IN THE U.S. CIVILIAN FIREARM MARKETPLACE PRIOR TO THE 1994 FEDERAL ASSAULT WEAPONS BAN

21. A decade-by-decade analysis of the civilian firearms market in the United States indicates how many makes and models of new firearms (handguns and long guns) were sold with factory-issue magazines having a capacity greater than 10 rounds of ammunition.<sup>13</sup> The information is drawn from Gun Digest, which since its 1955 edition has systematically published

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<sup>12</sup> See, for example, Louis Klarevas, *supra* note 1 (Relevant Excerpt Attached as **Exhibit I**); Louis Klarevas, et al., *supra* note 2 (Attached as **Exhibit J**); Charles DiMaggio, et al., “Changes in US Mass Shooting Deaths Associated with the 1994-2004 Federal Assault Weapons Ban: Analysis of Open-Source Data,” 86 *Journal of Trauma and Acute Care Surgery* 11 (2019) (Attached as **Exhibit K**); Lori Post, et al., “Impact of Firearm Surveillance on Gun Control Policy: Regression Discontinuity Analysis,” 7 *JMIR Public Health and Surveillance* (2021) (Attached as **Exhibit L**); and Philip J. Cook and John J. Donohue, “Regulating Assault Weapons and Large-Capacity Magazines for Ammunition,” 328 *JAMA*, September 27, 2022 (Attached as **Exhibit M**).

<sup>13</sup> Air, pellet, and BB guns have been excluded from this analysis.

this data in what is now known as the Gun Digest GUNDEX.<sup>14</sup> The objective of this evaluation is to identify the percentage of new firearm models sold with factory-issue LCMs in the U.S. civilian marketplace from the mid-1950s until the mid-1990s, when LCMs were restricted nationwide. As mentioned above, in 1994, Congress enacted the Federal Assault Weapons Ban, which prohibited the manufacture, importation, and sale of new LCMs that were not legally possessed prior to ban taking effect. As such, after the ban took effect on September 13, 1994, firearms sold in the civilian marketplace were not sold with new magazines holding more than 10 rounds of ammunition. Therefore, additional analysis is unnecessary, as the peak of LCM prevalence prior to nationwide restriction of such ammunition-feeding devices would have presumably been 1994, immediately prior to the ban's effect. For purposes of this analysis, data is drawn from the 1955, 1965, 1975, 1985, and 1995 editions of the GUNDEX. These editions, respectively, reflect market availability of firearm models in 1954, 1964, 1974, 1984, and 1994.<sup>15</sup>

22. Table 5 shows the number of new firearm models, current at-the-time, being sold with factory-issue magazines holding more than 10 rounds of ammunition at mid-decade, between 1955 and 1995. According to Gun Digest, in 1955, only two new firearm models were

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<sup>14</sup> GUNDEX is a registered trademark of *Gun Digest*. While *Gun Digest* has provided information on guns available for purchase in the United States since the publication of its first edition in 1944, it was not until the 1955 edition that *Gun Digest* began presenting this information in a quasi-systematic fashion, including make, model, and estimated price (at the time of publication). *Gun Digest* first referenced its catalog as the GUNDEX in its 1984 edition. Prior to that, it was referred to as the *Gun Digest* "Complete Compact Catalog." Describing the Complete Compact Catalog in its 1980 edition, *Gun Digest* wrote: "Its all-inclusive nature provides, if you look at a lot of them, a history of firearms availability in the United States. It covers virtually all firearms available to U.S. shooters, whether manufactured in the United States or elsewhere, or marketed by United States firms or others, and whether the arm is rimfire, centerfire, muzzleloader, rifle, handgun, shotgun." *Gun Digest, 34<sup>th</sup> Anniversary, 1980 Deluxe Edition* (1979), at 288.

<sup>15</sup> The 1995 *Gun Digest*, which contains the 1995 GUNDEX, was published in 1994. Despite being in the 1995 edition, the 1995 GUNDEX predominantly captures gun models available in the marketplace in 1994. The same pattern holds for all *Gun Digest* GUNDEXs—they reflect the firearm models available in the American marketplace in the year of publication (not the year of the *Gun Digest*'s annual edition, which is the year appearing on the cover). Again, every annual *Gun Digest* is published in the year prior to the edition listed on the cover.

sold in the United States with factory-issue LCMs. By 1995, this number had reached 152 new firearm models available in the civilian marketplace. As a share of all firearm models available in the American marketplace in the decades prior to the Federal Assault Weapons Ban taking effect, the range ran from a low of less than 1% in the 1950s and 1960s to a high of just over 7% of all new firearms sold with factory-issue large-capacity magazines in the 1990s (immediately prior to the federal ban imposing prohibitions on LCMs).

**Table 5. Firearm Models Sold with Factory-Issue LCMs in U.S., 1955-1995**

	<b>Number of New Firearm Models Sold with Factory-Issue LCMs in Civilian Market</b>	<b>Number of New Firearm Models Sold in Civilian Market</b>	<b>New Firearm Models Sold with Factory-Issue LCMs as a Share of New Firearm Models Sold in Civilian Market</b>
<b>1955</b>	2	301	0.7%
<b>1965</b>	3	510	0.6%
<b>1975</b>	14	834	1.7%
<b>1985</b>	69	1,270	5.4%
<b>1995</b>	152	2,108	7.2%

Sources: *Gun Digest*, 1955; *Gun Digest*, 1965; *Gun Digest*, 1975; *Gun Digest*, 1985 ; and *Gun Digest*, 1995.

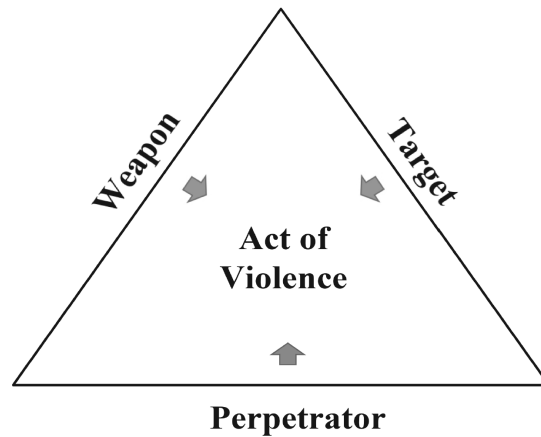
## **V. RESTRICTIONS ON LCMs REDUCE THE INCIDENCE OF GUN MASSACRES, RESULTING IN LIVES SAVED**

### **A. BANS IN THEORY**

23. As conceptualized in the Trinity of Violence model that I developed in my book on mass shootings, every act of violence involves three elements: a perpetrator, a weapon, and a target (Figure 8).<sup>16</sup> The key to mitigating violence is to “break the trinity” by hindering at least one of the three elements. This is accomplished by dissuading the potential offender(s), denying the potential instrument(s) of violence, or defending the potential victim(s).<sup>17</sup>

<sup>16</sup> See, Klarevas, *supra* note 1, at 27-29, 229-238.

<sup>17</sup> Ibid.

**Figure 8. The Trinity of Violence**

24. Bans are law-based concepts that prohibit certain behaviors by criminalizing them.<sup>18</sup> Bans on LCMs generally make it illegal to manufacture, import, transfer, own, or possess certain magazines. Bans work in relation to two of the three elements of the Trinity of Violence: dissuasion and denial. With regard to perpetrators, bans use the threat of criminal penalty to deter potential offenders from engaging in the prohibited behavior. In the case of bans on LCMs, they threaten conviction, imprisonment, and/or fines should an individual build or otherwise acquire a prohibited LCM. The primary mechanism at work here centers around dissuading potential shooters from trying to acquire banned firearm technologies. But there is also a secondary mechanism at work, focused on the LCM itself: deprive potential instruments of violence. Knowing that someone who is willing to commit murder might not be deterred from violating another criminal law, like possessing a prohibited item, bans on LCMs also threaten punishment against anyone who tries to transfer (through sale, gift, or loan) a restricted item to someone who is prohibited from acquiring it. This, in essence, reinforces the strategy of dissuading the offender with the strategy of denying the instruments of violence.

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<sup>18</sup> Philip J. Cook, “Research in Criminal Deterrence: Laying the Groundwork for the Second Decade,” 2 *Crime and Justice* 211 (1980); and Daniel S. Nagin, “Deterrence in the Twenty-First Century,” 42 *Crime and Justice* 199 (2013).

25. Ideally, someone intent on committing a mass shooting with an LCM would be dissuaded from going on a rampage by the fact that their means of choice are not available. In such a scenario, the attack would be quashed. This *suppression effect* is akin to what economists and psychologists refer to as a positive spillover effect, where one desirable outcome produces a second, loosely-related desirable outcome.<sup>19</sup> A real-world example of this is the so-called “Matrix Killings,” where a 19-year-old Virginia man blamed *The Matrix* film for driving him to murder his parents with a shotgun (without an LCM). At the time of the crime in 2003, the Federal Assault Weapons Ban was in effect, preventing him from obtaining an assault rifle and LCMs. In a 2013 jailhouse interview, he told CNN, “If I had an assault weapon, things would have been much worse.” He added that had he had an AR-15 instead of a shotgun, he is positive that, after killing his parents, he would have gone on rampage and “killed as many people as I possibly could.” As he noted, “because I didn’t have an assault weapon, that didn’t happen.”<sup>20</sup> In this case, the unavailability of an assault weapon due to the federal ban suppressed the perpetrator’s impulse to commit a mass shooting.

26. Of course, some potential mass shooters will not be discouraged from going on a killing spree just because their means of choice are unavailable. They will instead replace their desired instruments of violence with available alternatives. This is commonly referred to as the *substitution effect*, wherein an act of violence is still perpetrated, but with a different, less lethal instrument of violence.<sup>21</sup> A real-world example of the substitution effect at work is the 2019

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<sup>19</sup> Paul Dolan and Mateo M. Galizzi, “Like Ripples on a Pond: Behavioral Spillovers and Their Implications for Research and Policy,” 47 *Journal of Economic Psychology* 1 (2015); K. Jane Muir and Jessica Keim-Malpass, “Analyzing the Concept of Spillover Effects for Expanded Inclusion in Health Economics Research,” 9 *Journal of Comparative Effectiveness Research* 755 (2020).

<sup>20</sup> “Inside the Mind of a Killer,” CNN (Transcripts), August 23, 2013, *available at* <https://transcripts.cnn.com/show/pmt/date/2013-08-23/segment/01> (last accessed January 24, 2023).

<sup>21</sup> Philip J. Cook, “The Effect of Gun Availability on Violent Crime Patterns,” 455 *Annals of the American Academy of Political and Social Science* 63 (1981); Anthony A.

synagogue rampage in Poway, California. In that attack, the gunman appears to have been unable to acquire an assault rifle and LCMs due to California's ban on both. Instead, he acquired what is known as a California-compliant semiautomatic rifle (which lacked features such as a pistol grip and a forward hand grip) and 10-round magazines. As a result, the gunman quickly ran out of bullets, and while pausing to reload—which appears to have been extremely difficult given that he did not have assault weapon features on his rifle that facilitated fast reloading—a congregant chased him away, preventing him from continuing his attack.<sup>22</sup> In this incident, which resulted in one death, California's ban on assault weapons and LCMs worked exactly as intended. It prevented the active shooter from being able to kill enough people to surpass the fatality threshold of a mass shooting. Stated differently, if you examine data sets that identify shootings resulting in mass murder, you will not find the Poway synagogue attack on their lists.

27. It might seem perverse to think that restrictions on certain instruments of violence operate on the premise that, if an act of violence cannot be averted, then it will proceed with an alternative instrument. Nevertheless, this is exactly how bans on LCMs (and assault weapons) work in theory. They suppress the inclinations of potential mass shooters to go on killing rampages in the first place because their means of choice are unavailable. And, should deterrence fail, bans force perpetrators to substitute less lethal instruments for more dangerous, prohibited ones, reducing the casualty tolls of attacks when they do occur.

#### **B. THE OPERATIVE MECHANISM OF LCM BANS: FORCING PAUSES IN ACTIVE SHOOTINGS**

28. LCMs provide multiple advantages to active shooters. Offensively, LCMs increase kill potential. Basically, the more bullets a shooter can fire at a target within a finite amount of time, the more potential wounds they can inflict. Furthermore, the more bullets that

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Braga, et al. "[Firearm Instrumentality: Do Guns Make Violent Situations More Lethal?](#)", 4 *Annual Review of Criminology* 147 (2021).

<sup>22</sup> Elliot Spagat and Julie Watson, "Synagogue Shooter Struggled with Gun, Fled with 50 Bullets," Associated Press, April 30, 2019, *available at* <https://apnews.com/article/shootings-north-america-us-news-ap-top-news-ca-state-wire-8417378d6b934a8f94e1ea63fd7c0aea> (last accessed January 24, 2023).

strike a victim, the higher the odds that that person will die. These two factors—sustained-fire capability and multiple-impact capability—allow LCMs to increase a shooter’s kill potential.

29. When inserted into either a semiautomatic or fully automatic firearm, an LCM facilitates the ability of an active shooter to fire a large number of rounds at an extremely quick rate without pause. This phenomenon—sustained-fire capability—comes in handy when a target is in a gunman’s line of sight for only a few seconds. For example, sustained-fire capability allows a reasonably competent shooter to fire three rounds per second with a semiautomatic firearm and ten rounds per second with an automatic firearm. That results in numerous chances to hit a target in a short window of opportunity, especially when ammunition capacity is large.

30. LCMs also facilitate the ability of a shooter to strike a human target with more than one round. This phenomenon—multiple-impact capability—increases the chances that the victim, when struck by multiple rounds, will die. At least two separate studies have found that, when compared to the fatality rates of gunshot wound victims who were hit by only a single bullet, the fatality rates of those victims hit by more than one bullet were over 60 percent higher.<sup>23</sup> The implication is straightforward: being able to strike human targets with more than one bullet increases a shooter’s chances of killing their victims. In essence, LCMs are force multipliers when it comes to kill potential—and the evidence from gun massacres supports this conclusion (*see* Section II).

31. In addition to offensive advantages, LCMs also provide the defensive advantage of extended cover. During an active shooting, a perpetrator is either firing their gun or not firing their gun. While pulling the trigger, it is difficult for those in harm’s way to take successful defensive maneuvers. But if the shooter runs out of bullets, there is a lull in the shooting. This precious downtime affords those in the line of fire with a chance to flee, hide, or fight back.

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<sup>23</sup>Daniel W. Webster, et al., “Epidemiologic Changes in Gunshot Wounds in Washington, DC, 1983–1990,” 127 *Archives of Surgery* 694 (June 1992); Angela Sauaia, et al., “Fatality and Severity of Firearm Injuries in a Denver Trauma Center, 2000–2013,” 315 *JAMA* 2465 (June 14, 2016).



32. There are several examples of individuals fleeing or taking cover while active shooters paused to reload. For instance, in 2012, several first-graders at Sandy Hook Elementary School in Newtown, Connecticut, escaped their attacker as he was swapping out magazines, allowing them to exit their classroom and dash to safety.<sup>24</sup> Other well-known examples include the 2007 Virginia Tech and the 2018 Borderline Bar and Grill rampages.<sup>25</sup> There is also the possibility that someone will rush an active shooter and try to tackle them (or at the very least try to wrestle their weapon away from them) while they pause to reload.<sup>26</sup> In recent history, there have been numerous instances of gunmen being physically confronted by unarmed civilians while reloading, bringing their gun attacks to an abrupt end. Prominent examples include the 1993 Long Island Rail Road, the 2011 Tucson shopping center, the 2018 Nashville Waffle House, and the 2022 Laguna Woods church shooting rampages.<sup>27</sup> When there are pauses in the

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<sup>24</sup>See Dave Altimari, et al., “Shooter Paused and Six Escaped,” *Hartford Courant*, December 23, 2012 (Attached as **Exhibit N**).

<sup>25</sup> Virginia Tech Review Panel, *Mass Shootings at Virginia Tech, April 16, 2007: Report of the Virginia Tech Review Panel Presented to Governor Kaine, Commonwealth of Virginia*, Revised with Addendum, November 2009, available at <https://scholar.lib.vt.edu/prevail/docs/April16ReportRev20091204.pdf> (last accessed February 1, 2023); “California Bar Shooting: Witnesses Describe Escaping as Gunman Reloaded,” CBS News, December 7, 2018, available at <https://www.cbsnews.com/news/borderline-bar-shooting-thousand-oaks-california-12-dead-witnesses-describe-gunman-storming-in> (last accessed February 1, 2023).

<sup>26</sup>The longer a shooter can fire without interruption, the longer they can keep potential defenders at bay. The longer potential defenders are kept from physically confronting a shooter, the more opportunity there is for the shooter to inflict damage.

<sup>27</sup> See, Rich Schapiro, “LIRR Massacre 20 Years Ago: ‘I Was Lucky,’ Says Hero Who Stopped Murderer,” *New York Daily News*, December 7, 2013, available at <http://www.nydailynews.com/new-york/nyc-crime/lirr-massacre-20-years-lucky-hero-stopped-murderer-article-1.1540846> (last accessed February 1, 2023); Sam Quinones and Nicole Santa Cruz, “Crowd Members Took Gunman Down,” *Los Angeles Times*, January 9, 2011, available at <https://www.latimes.com/archives/la-xpm-2011-jan-09-la-na-arizona-shooting-heroes-20110110-story.html> (last accessed February 1, 2023); Brad Schmitt, “Waffle House Hero: Could You Rush Toward a Gunman Who Just Killed People?” *The Tennessean*, April 24, 2018, available at <https://www.tennessean.com/story/news/crime/2018/04/24/waffle-house-hero-could-you-rush-toward-gunman-who-just-killed-people/543943002> (last accessed February 1, 2023); “Parishioners Stop Gunman in Deadly California Church Attack,” NPR, May 16, 2022, available at <https://www.npr.org/2022/05/16/1099168335/parishioners-stop-gunman-in-california-church-shooting> (last accessed February 1, 2023).



shooting to reload, opportunities arise for those in the line of fire to take life-saving action.<sup>28</sup>

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<sup>28</sup> In his Declaration in the present case, Kleck writes, “Reloading creates a pause in firing that bystanders theoretically might use to tackle the shooter and stop the killing, but there are no known cases of this actually happening in the U.S. in the past 30 years. Likewise, reloading does not slow the shooters rate of fire, which might have allowed more prospective victims to escape or hide (Kleck 2016).” 2023 Kleck Declaration, Para. 50; citing Kleck, 2016, *supra* note 7 (Attached as **Exhibit E**). As Kleck appears to acknowledge, reloading does create opportunities for those in the line of fire to physically confront an active shooter. Of course, it is important to remember that reloading also creates opportunities for potential victims to flee the scene or take cover. Focusing only on the fight element of the “Run, Hide, Fight” active shooter safety protocol, Kleck makes the demonstrably false claim that “there are no known cases of this actually happening in the U.S. in the past 30 years.” There are numerous examples of active shooters being physically confronted while reloading. The examples identified in Para. 32 of this Declaration are just a sampling of such incidents. Based in part on this false premise, Kleck then goes on to make the preposterous claim that “reloading does not slow the shooters rate of fire, which might have allowed more prospective victims to escape or hide.” Kleck’s reasoning for making such a claim is actually found earlier in his Declaration:

Analysis of mass shootings in which it was possible to determine the offender’s rate of fire reveals that mass shooters using semiautomatic guns fire at relatively slow rates, invariably less rapid than the rate of which the weapons are capable (3 or more rounds per second) (Kleck 2016). Reloading a detachable magazine takes ordinary shooters only about 3-4 seconds, and mass shooters who rehearse their crimes by practicing rapid reloads could probably do still better. *The average interval between shots in mass shootings, however, is well over 3-4 seconds* (see Table 3 in Kleck 2016). *This means that pauses in shooting due to reloading are actually shorter in duration than the pauses between shots that mass shooters routinely take whether or not they are reloading.* Thus, it is implausible that inducing mass shooters to reload more often provides any additional time sufficient for more victims to escape or hide. 2023 Kleck Declaration, Para. 26 (emphasis added); citing Kleck 2016, *supra* note 7.

The problem with this entire claim is that it is based on Kleck’s assertion that “The average interval between shots in mass shootings, however, is well over 3-4 seconds.” Anyone who has watched video or listened to audio of mass shootings knows that this is highly misleading. For starters, it is important to note that Kleck is not claiming that active shooters do not fire their weapons at a rapid rate of 3 rounds per second. Instead, he is claiming that “the *average* interval between shots in mass shootings ... is well over 3-4 seconds.” Two examples from Kleck’s 2016 article, which provides the foundation for his claim, explain why this is a flawed conclusion based on a problematic methodology. With regard to the May 24, 2000, Wendy’s restaurant mass shooting, the gunmen fired 7 rounds into seven victims (each one bound and gagged) during a robbery that appears to have lasted approximately 15 minutes. However, because it took one of the surviving gunshot victims approximately 90 minutes to free himself from the duct tape that was used to tie him up before he could phone 911, Kleck calculates the duration of the shooting as upwards of 90 minutes. Kleck then divides the number of bullets fired (7 rounds) into his estimate of the duration of the attack (90 minutes), allowing him to calculate the rate of fire for this incident at upwards of one shot every 771 seconds (which is about 13 minutes between each shot). This is wrong. The Wendy’s gunmen lined up the seven victims and fired one round into each person, one right after the other. It appears from news reports that the actual shooting happened quite rapidly, perhaps lasting no more than 1 minute. That would make the *average* rate of fire approximately one shot every 8-9 seconds—not one shot upwards of every 771 seconds, as indicated in Table 3 of Kleck’s 2016 article. *See*, David Barstow and William K. Rashbaum “In Queens, Shock at a Methodical Massacre of 5,” *New*

### C. BANS IN PRACTICE

33. In light of the growing threat posed by mass shootings, legislatures have enacted restrictions on assault weapons and LCMs in an effort to reduce the occurrence and lethality of such deadly acts of firearm violence. Prominent among these measures was the 1994 Federal Assault Weapons Ban. In September 1994, moved to action by high-profile shooting rampages that occurred the previous year at a San Francisco law firm and on a Long Island Rail Road commuter train, the U.S. Congress enacted a ban on assault weapons and LCMs that applied to all 50 states plus the District of Columbia, bringing the entire country under the ban.<sup>29</sup>

34. Like the state bans on assault weapons and LCMs that were implemented before it, the federal ban was aimed primarily at reducing mass shooting violence—an objective the ban

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*York Times*, May 26, 2000, available at <https://archive.nytimes.com/www.nytimes.com/library/national/regional/052600ny-wendys.html> (last accessed February 4, 2023); Murray Weiss, “Massacre Hero Tells How His Friends Died,” *New York Post*, September 27, 2000, available at <https://nypost.com/2000/05/27/massacre-hero-tells-how-his-friends-died> (last accessed February 4, 2023). An even more egregious example of manipulating the data is the April 16, 2007, Virginia Tech massacre, which resulted in the murder of 32 people. That day’s violence began sometime after 7:02 am when the gunman fired up to 4 rounds, killing two students in their dormitory. The gunman then returned to his dorm room and subsequently went to the post office to mail a parcel to NBC News. Only later in the morning, at 9:42 am, did the gunman resume his rampage, attacking a classroom building. The classroom shooting lasted approximately 9 minutes, with the last shot fired at 9:51 am. In total, as many as 4 rounds were fired in the dormitory and 174 rounds were fired in the classroom building. (Kleck states that 174 rounds were fired, but it was slightly more because he did not account for the rounds fired in the dormitory). Kleck claims that the entire shooting lasted 156 minutes (7:15-9:51). He then calculates the gunman’s rate of fire by dividing 174 rounds into 156 minutes, which produces an absurd rate of one round fired every 54 seconds. *See*, Virginia Tech Review Panel, *supra* note 25; Annie Johnson and Nathan Thornburgh, “Witness: The Dormitory Murders,” *Time*, April 20, 2007, available at <https://web.archive.org/web/20131227141252/http://content.time.com/time/nation/article/0%2C8599%2C1613010%2C00.html> (last accessed February 4, 2023). If the victims had had nearly one minute between rounds, many of the dead would likely have survived. Instead, Kleck’s problematic analysis gives the impression that the gunman was firing during shooting lulls, including the nearly two-and-a-half-hour interruption in the attack at Virginia Tech, during which time the gunman left the campus and went to the post office in order to mail a package. The crux of Kleck’s argument is that forcing active shooters to pause in order to reload will not likely result in many lives being saved because active shooters reload quickly but fire their guns slowly. Both of these claims are without foundation. Moreover, as the next sub-section of this Declaration shows, the evidence on the effect of LCM restrictions supports findings that challenge Kleck’s assertions.

<sup>29</sup> Pub. L. No. 103-322, tit. XI, subtit. A, 108 Stat. 1796, 1996-2010 (codified as former 18 U.S.C. § 922(v), (w)(1) (1994)).

sought to achieve by prohibiting the manufacture, importation, possession, and transfer of assault weapons and LCMs not legally owned by civilians prior to the date of the law's effect (September 13, 1994).<sup>30</sup> Congress, however, inserted a sunset provision in the law which allowed the federal ban to expire in exactly 10 years, if it was not renewed beforehand. As Congress ultimately chose not to renew the law, the federal ban expired on September 13, 2004. In the aftermath of the federal ban's expiration, mass shooting violence in the United States increased substantially.<sup>31</sup>

35. Currently, 37.5% of the U.S. population is subject to restrictions on LCMs. The following is a list of the 15 state-level jurisdictions that presently have statutes restricting LCMs: New Jersey (March 30, 1990), Hawaii (July 1, 1992), Maryland (June 1, 1994), Massachusetts (July 23, 1998), California (January 1, 2000), New York (November 1, 2000), Washington, D.C. (March 31, 2009), Connecticut (April 4, 2013), Colorado (July 1, 2013), Vermont (April 11, 2018), Rhode Island (June 21, 2022), Washington (July 1, 2022), Delaware (August 29, 2022), Oregon (December 8, 2022), and Illinois (January 10, 2023).<sup>32</sup> As a reminder, from September 13, 1994, through September 12, 2004, the entire country was subject to a federal ban on LCMs.

36. The rationale for restricting LCMs is to reduce the loss of life associated with the increased kill potential of such firearm technologies, because, on average, the use of LCMs results in higher death tolls in gun massacres. In the field of epidemiology, a common method for assessing the impact of laws and policies is to measure the rate of onset of new cases of an

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<sup>30</sup> Christopher Ingraham, "The Real Reason Congress Banned Assault Weapons in 1994—and Why It Worked," *Washington Post*, February 22, 2018, available at <https://www.washingtonpost.com/news/wonk/wp/2018/02/22/the-real-reason-congress-banned-assault-weapons-in-1994-and-why-it-worked> (last accessed January 2, 2023).

<sup>31</sup> See sources cited *supra* note 12.

<sup>32</sup> The dates in parentheses mark the effective dates on which the listed states became subject to bans on LCMs. At present, state courts have enjoined Oregon and Illinois from enforcing their restrictions on LCMs. See, *Arnold v. Brown*, No. 22CV41008 (Harney Cnty., Or., Cir. Ct.); *Accuracy Firearms, LLC, et al. v. Pritzker, et al.*, 23-MR-4 (Ill. 4th Jud. Cir. Ct.). For purposes of the analysis in the section, both states are coded as states without LCM bans in effect because they have been enjoined from enforcing their LCM restrictions.

event, comparing the rate when and where the laws and policies were in effect against the rate when and where the laws and policies were not in effect. This measure, known as the incidence rate, allows public health experts to identify discernable differences, while accounting for variations in the population, over a set period of time. Relevant to the present case, calculating incidence rates across states, in a manner that captures whether or not bans on LCMs were in effect during the period of observation, allows for the assessment of the effectiveness of such bans. In addition, fatality rates—the number of deaths, per population, that result from particular events across different jurisdictions—also provide insights into the impact of LCM bans on mass shooting violence.<sup>33</sup>

37. Since 1990, when New Jersey became the first state to ban LCMs, through 2022, there have been 94 high-fatality mass shootings in the United States (**Exhibit C**).<sup>34</sup> Calculating incidence and fatality rates for this time-period, across jurisdictions with and without bans on LCMs, reveals that states subject to such bans experienced a 51% decrease in high-fatality mass shooting incidence rates. They also experienced a 62% decrease in high-fatality mass shooting fatality rates, regardless of whether LCMs were used by the mass murderers (Table 6).<sup>35</sup>

38. When calculations go a step further and are limited to mass shootings involving LCMs, the difference between the two jurisdictional categories is even more pronounced. In the time-period from January 1, 1990, through December 31, 2022, accounting for population, states with bans on LCMs experienced a 58% decrease in the rate of high-fatality mass shootings

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<sup>33</sup> For purposes of this Declaration, incidence and fatality rates are calculated using methods and principles endorsed by the Centers for Disease Control. *See* Centers for Disease Control and Prevention, *Principles of Epidemiology in Public Health Practice: An Introduction to Applied Epidemiology and Biostatistics* (2012), available at <https://stacks.cdc.gov/view/cdc/13178> (last accessed January 3, 2023).

<sup>34</sup> There were no state bans on LCMs in effect prior to March 1, 1990. Therefore, 1990 is a logical starting point for an analysis of the impact of bans on LCMs.

<sup>35</sup> Between September 13, 1994, and September 12, 2004, the Federal Assault Weapons Ban was in effect. During that 10-year period, all 50 states and the District of Columbia were under legal conditions that restricted LCMs. As such, the entire country is coded as being under a ban on LCMs during the timeframe that the Federal Assault Weapons Ban was in effect.

involving LCMs. Similarly, jurisdictions with such bans in effect experienced a 69% decrease in the rate of deaths resulting from high-fatality mass shootings involving LCMs (Table 6). The above epidemiological calculations lead to the same conclusion: when bans on LCMs are in effect, per capita, fewer high-fatality mass shootings occur and fewer people die in such shootings—especially incidents involving LCMs, where the impact is most striking.

39. The main purpose of bans on LCMs is to restrict the availability of LCMs. The rationale is that, if there are fewer LCMs in circulation, then potential mass shooters will either be dissuaded from attacking or they will be forced to use less-lethal firearm technologies, like semiautomatic firearms with magazines holding 10 or less rounds. Forcing active shooters to reload creates critical pauses in an attack. These pauses provide opportunities for people in the line of fire to take life-saving measures, which in turn can help reduce casualties.

40. The epidemiological data lend support to the policy choices of Oregon that seek to enhance public safety through restrictions on civilian access to LCMs. While imposing constraints on LCMs will not prevent every mass shooting, the data suggest that legislative efforts to restrict LCMs should result in lives being saved.

**Table 6. Incidence and Fatality Rates for High-Fatality Mass Shootings, by Whether or Not Bans on LCMs Were in Effect, 1990-2022**

	Annual Average Population (Millions)	Total Incidents	Annual Incidents per 100 Million Population	Total Deaths	Annual Deaths per 100 Million Population
All High-Fatality Mass Shootings					
Non-Ban States	162.7	67	1.25	713	13.28
Ban States	133.6	27	0.61	224	5.08
Percentage Decrease in Rate for Ban States			51%		62%
High-Fatality Mass Shootings Involving LCMs					
Non-Ban States	162.7	46	0.86	568	10.58
Ban States	133.6	16	0.36	145	3.29
Percentage Decrease in Rate for Ban States			58%		69%

Note: The above analysis codes incidents as high-fatality mass shootings involving LCMs if a magazine with a capacity greater than 10 rounds was used in the shooting. However, Colorado law defines LCMs as magazines holding more than 15 rounds. Coding the May 9, 2021, incident in Colorado Springs, CO, which involved 15-round magazines, as an incident not involving LCMs, results in an incident rate of 0.34 and a fatality rate of 3.15 for ban states in the second portion of Table 6 (“High-Fatality Mass Shootings Involving LCMs”). This, in turn, results in corresponding percentage decreases for ban state rates (when compared to non-ban state rates) of 60% and 70%, as opposed to 58% and 69%.

Source: Incident and fatality data are from **Exhibit C**. Population data are from U.S. Census Bureau, “Population and Housing Unit Estimates Datasets,” *available at* <https://www.census.gov/programs-surveys/popest/data/data-sets.html> (last accessed January 3, 2023).

I hereby declare that the above statement is true to the best of my knowledge and belief and that I understand it is made for use as evidence in court and is subject to penalty for perjury.

Dated this 6<sup>th</sup> day of February, 2023.

s/ Louis Klarevas  
Louis Klarevas